

Capture Methane Released from Pipeline Liquid Storage Tanks



Partner Reported Opportunities (PROs)
for Reducing Methane Emissions

PRO Fact Sheet No. 504

Applicable sector(s):

☐ Production ☐ Processing ☒ Transmission and Distribution

Partners reporting this PRO: Columbia Gulf Transmission

Other related PROs: Install Pressurized Storage of Condensate, Install Flares

Compressors/Engines ☐
Dehydrators ☐
Pipelines ☐
Pneumatics/Controls ☐
Tanks ☒
Valves ☐
Wells ☐
Other ☐

Technology/Practice Overview

Description

Condensate liquids in produced gas are captured by a mist eliminator filter/coalescer ahead of the first compressor station in transmission pipelines. Methane, as well as volatile organic compounds (VOCs) and hazardous air pollutants (HAPs), are saturated in the condensate liquids at the high pressure. When the condensate liquids are transferred to atmospheric storage tanks, the methane, VOCs, and HAPs flash from the stored liquid and are usually vented to the atmosphere.

One partner reported capturing and flaring the flash gases from its atmospheric condensate storage tanks. This practice reduces methane, VOC, and HAP emissions.

Operating Requirements

Fuel gas for one or two flare pilot burners is needed for the flare.

Applicability

This practice is applicable at the first compressor station in the transmission line.

Methane Savings: 160 Mcf per year

Costs

Capital Costs (including installation)

☒ <\$1,000 ☐ \$1,000 – \$10,000 ☐ >\$10,000

Operating and Maintenance Costs (annual)

☐ <\$100 ☒ \$100-\$1,000 ☐ >\$1,000

Payback (Years)

☐ 0–1 ☐ 1–3 ☐ 3–10 ☒ >10

Benefits

Reducing methane emissions was an associated benefit of the project.

Methane Emissions Reductions

Methane emissions savings are calculated for capturing and flaring flash gas from one condensate storage tank, assuming that the condensate is at 400 to 700 psig and releases up to 250 scf of methane per barrel. One partner reported methane savings of 334 Mcf per year from two condensate storage tanks.

Economic Analysis

Basis for Costs and Savings

The methane savings of 160 Mcf per year are estimated for one atmospheric condensate storage tank that receives 1.75 billion barrels per day (bbl/d).

Discussion

The operating cost for this practice is based on a two-pilot flare that consumes fuel gas at 70 scf per hour per pilot. There is no capital cost with an existing flare, and no payback associated with implementing this practice. The primary benefit of the project is for environmental purposes.